

EIGHTEEN NEW SPECIES OF FISHES FROM NORTHWESTERN SOUTH AMERICA.¹

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(Read October 5, 1917.)

In preparing a monograph on the fresh-water fishes of the northwestern corner of South America, the region west of the Andes from Peru to Panama, the species described in this paper were found to be new. Other preliminary accounts of new species from the same region have been described in *Indiana University Studies*, Nos. 16, 18, 19, 20, 23, 24 and 25, and in articles No. V., VI., VII., and IX. of the *Annals of the Carnegie Museum*, Vol. X.

The specimens were collected by Manuel Gonzales, Charles Wilson, Arthur Henn and myself.

Manuel Gonzales collected in part under the auspices of Indiana University, and in part under the joint auspices of Indiana University and the Carnegie Museum. He collected for Indiana University in the lower levels of the Magdalena Basin at and near Puerto Berrio and at Apulo. Also, along the route from Bogotá to Villavicencio and Barrigona, on the Meta River, largely at Villavicencio and Barrigona. He collected for Indiana University and the Carnegie Museum along the routes from Honda on the Magdalena River eastward to Facatativa, from Bogotá north to Mogotes in the Province of Santander and eastward from Bogotá along the route to Villavicencio. Along these routes he secured an unequalled collection of fishes from the mountain rivulets of the eastern Andes, both on the eastern and western slope.

Messrs. Wilson and Henn collected under the auspices of Indiana University chiefly through the generosity of Mr. Hugh McK. Landon, of Indianapolis, assisted also by Mr. Carl G. Fisher of Indianapolis.

¹ Contribution from the Zoölogical Laboratory of Indiana University, No. 160.

Mr. Charles Wilson accompanied Mr. Arthur Henn to the Patia River of southern Colombia, later ascended the San Juan River emptying into the Pacific Ocean just north of Buenaventura, crossed over the divide and descended the Atrato River to its mouth. Mr. Arthur Henn went with Mr. Wilson to the Patia River; after separating from Wilson he collected in the lower San Juan Basin, in Colombia, about Puerto Viejo, Ecuador, the lower Guayaquil Basin, Ecuador, and along the line from Guayaquil to Quito and northward to the upper Patia Basin in Colombia.

My own collecting was done along the line from Cartagena to Bogotá, from Bogotá to Buenaventura, up the San Juan River to Istmina and down the Atrato to its mouth. Detailed accounts of these trips will be published with the monograph mentioned above.

The letter "I." after the catalogue number indicates that the specimens are in the collections of Indiana University, "C." indicates the collections of the Carnegie Museum at Pittsburgh.

ASTROBLEPIDÆ.

1. *Astroblepus latidens* spec. nov.

This species is similar to *A. trifasciatus* from the Rio Dagua. It is, as far as known, found only on the eastern slope of the eastern Andes of Colombia. All the specimens recorded below are from along the route between Bogotá and Villavicencio and Barrigona, and were collected by Manuel Gonzales and under his direction. This species ranges through the same gamut of color as *A. trifasciatus*, some specimens having conspicuous cross bands, others being uniform in color. The adults are readily distinguished from *A. trifasciatus* by the very broad teeth in the outer row of the premaxillary, a difference not evident in the young.

SPECIMENS EXAMINED.

Catalog Number.	Number of Specimens.	Length in Mm.	Locality.
7362 C., type	1 ♀	57	Piperel.
13677 I., 7363 C.	10	28-58	Piperel.
13678 I., 7364 C., paratypes ...	5	48-73	Caqueza.
13679 I., 6365 C., paratypes ...	18	27-60	Quebrada Hirajara.
13680 I., 6366 C.	33	largest 79	Quebrada Perdizes.
13681 I., 7367 C.	12	20-18	Río Fosco.

Head 3.5; depth 5. Adipose fin consisting of a fleshy spine and an insignificant membrane. Dorsal and pectoral spines produced, if at all, by not over a millimeter beyond the rest of the rays; both lips very broad; outer teeth of the premaxillary of the adults chisel-shaped, broad tipped, the middle pair or two middle pairs sometimes bifid, about seven teeth on each premaxillary; teeth in the young much more slender; maxillary barbel usually not extending beyond the posterior margin of the lip, sometimes falling considerably short of that point, extending beyond the margin only in some of the largest specimens from Perdizes and Fosco; nasal flap short, not continued as a barbel; pectorals reaching a little beyond origin of ventrals; pectoral spine equal to the length of the head less the portion in front of the nares; ventrals inserted under the origin of the dorsal, extending little if any more than half way to the anal; anus usually about half way between tips of ventrals and origin of the anal, very rarely reached by the ventrals; dorsal spine a little shorter than pectoral spine, the rays graduate or coterminial; interocular space less than the distance from the eyes to the posterior nares, 4-5 in the length of the head; distance between tip of snout and dorsal 2.25-2.5 in the length; anal membranes in the male uniform, or the first two membranes a little wider; a light spot covering adipose spine and its membrane, sometimes a light bar at this point as in *unifasciatus*; body uniform dark or obscurely spotted; base of caudal and a distal bar or some distal spots dark, sometimes uniform; dorsal and pectoral sometimes with dark markings.

2. *Astroblepus cyclopus santanderensis* var. nov.

SPECIMENS EXAMINED.

Catalog Number.	Number of Specimens.	Length in Mm.	Locality.
7430 C.....	1	33	Quebrada de Guapota.
13740 I., 7429 C.....	4	27-32	Quebrada Guadalupe.
7428 C.....	2	44-55	Quebrada la Pava.
13741 I.....	3	21-54	Quebrada Callejona
13682 I., 7368 C.....	21	20-63	Quebrada de Suescum.
13683 I., 7369 C.....	6	41-76	San Gil.
13684 I., 7370 C.....	8	32-75	Rio Mogotes.
13685 I., 7371 C.....	7	37-62	Quebrada Chavala.
7424 C.....	3	22-41	Quebrada de la Pelada.
7425 C.....	2	28-36	Quebrada Variri.

These specimens were all collected by Manuel Gonzales in Santander, Colombia, in tributaries of the Rio Suarez at an elevation of from 1,000–2,000 M. They agree in all essential respects with *A. unifasciatus*. They differ uniformly, but not always greatly in having the thin membrane of the adipose oblique from the tip of the spine to the most posterior point of its attached base. This is characteristic of even the smallest specimens from Suescum, but in the three specimens from Callejona the membrane is truncate as in *A. unifasciatus*. In color they approach *A. orientalis*, there being conspicuous, irregular, sometimes confluent spots on a light background, usually there is a band across the body in the region of the adipose fin. The ventrals extend to or even beyond the anus in the very small individuals but usually fall short of it in the larger.

3. *Astroblepus frenatus* spec. nov.

Among many specimens of *Astroblepus micrescens* from Santander there is one that probably represents another species.

7380 C., type, a female 43 mm. Quebrada de San Joaquin, Santander. Gonzales.

Head 3.25; D. I, 6; A. 7; interocular less than distance between eye and nostril, 4.5 in the length of the head; nasal flap moderate; barbel not extending beyond the posterior margin of the lip; pectoral rays extending considerably beyond the base of the ventrals, the outer rays to almost its middle; origin of ventrals just in advance of the dorsal ray, reaching not quite to the anus, which is .75 of the distance from the origin of the ventrals to the anal; anal obliquely truncate, not reaching the caudal; caudal symmetrically lunate, the outer rays slightly produced; adipose fin a very low fold, with a minute spiniferous spine, evident externally through its spinules, which project beyond the margin of the fin; dorsal spine equal to head less region in front of nares, the rays all coterminous when the fin is depressed; distance of dorsal from snout about 2.3 in the length; premaxillary with one bicuspid tooth, the rest all pointed. A dark streak from eye to base of barbels; sides with a few large spots; a light bar down from behind the spine of the adipose; base of caudal and two rows of spots dark.

4. *Astroblepus grixalvii micrescens* var. nov.

The following specimens came from the western slope of the eastern Andes, north of Bogotá. They were collected by Manuel Gonzales.

SPECIMENS EXAMINED.

Catalog Number.	Number of Specimens.	Length in Mm.	Locality.
7372 C., type.	1 ♂	69	Quebrada de Agua Larga.
13686 I., 7373 C., paratypes	25	32-64	Quebrada de Agua Larga.
13687 I., 7374 C.	2	68-76	Quebrada Densino, Santander.
13743 I.	3	30-52	Quebrada de la Pelada, Santander.
13688 I., 7375 C.	5	30-95	Rio Susa, Santander.
13689 I., 7376 C.	6	31-89	Quebrada de Potrero, Santander.
13690 I., 7377 C.	3	41-74	Quebrada de Siachia, Santander.
13691 I., 7378 C.	19	27-89	Quebrada de San Joaquin, Santander.
13692 I., 7379 C.	13	23-80	Rio de Ducho, Norte.
13737 I., 7427 C.	5	37-50	Rio de Pacho, western slope, eastern Andes.
13693 I., 7382 C.	4	32-49	Quebrada de Cabarachi, Santander.

This variety greatly resembles *A. unifasciatus* and *A. orientalis*; it differs from the former in the nature of the adipose fin, and from the latter at least in the length of the pectorals and ventrals.

Head 3.75-4; D. I, 6; A. 7; interocular 4-4.5 in the head, slightly less than the distance between posterior nares and eye; nasal flap broad, its outer angle slightly produced or not; barbel about reaching the gill-opening, sometimes falling a little short and sometimes extending a little beyond; pectorals broad, the divided rays fan-shaped, extending about to the ventrals, the outer ray reaching almost to the second third of the ventrals; ventrals lanceolate, their origin under the first dorsal ray; the outer ray reaching nearly to or beyond the anus, which is two thirds to three fourths the distance from the origin of the ventrals to the anal; anal obliquely truncate, the anterior ray always extending beyond the following one in the female; the first and second membranes in the male very wide, the third, fourth and fifth rays close together and extending beyond the first two and the last two, not near reaching the caudal; caudal symmetrically emarginate, the outer rays prolonged; adipose fin in the young an adnate or subadnate spiniferous spine, with age a dermal ridge develops in which the spine disappears or is retained as a non-spiniferous stay. (The process does not take place at the

same rate in all specimens so that in two specimens of the same size, one may have an apparent spine while in the other it may be hidden. The smaller ones in which the spine is especially well developed may not be distinguishable from *A. unifasciatus*.) Dorsal spine very slightly, if at all, produced, almost two thirds the length of the head; distance between snout and dorsal 2.66–2.75 in the length; teeth of the premaxillary all single pointed, or one or two pairs bicuspid. Sides variously spotted, a V-shaped light area in front of the dorsal, frequently a bar across the sides below the adipose as in *A. unifasciatus*; base of caudal and one or two rows of spots parallel with the margin.

The paratypes differ but little from each other, and the specimens from the Ducho are very similar to them.

LORICARIIDÆ.

5. *Hemiancistrus Wilsoni* spec. nov.

For Mr. Charles Wilson who made large collections in the Rio Truando, a tributary of the Rio Atrato.

7570 C.; 13921 I., eight, 90–133 mm. Truando. Wilson. The largest the type. Similar to *H. holostictus* from the San Juan.

Head 3–3.25; depth 4.5–5; D. I, 7; A. I, 4; 27 scutes, six or seven between the dorsals, 11 + 3 between the anal and caudal; depth at tip of occipital equals snout and half the eye; width above base of pectoral almost equal to length of the head; mandible 3–3.6 in the interorbital; eye 4.25 in snout, 3 in interorbital, 7 in the head; interorbital with 3 minute spines or none.

Occipital with a high keel, median plate behind it feebly bicarinate, plates of the sides well carinate; dorsal spine equal to head and two or three scutes behind it, reaching to the adipose spine or the plate in front of it, the last ray reaching the spine of the adipose; caudal deeply emarginate, the lower lobe considerably longer, 2.2 in the length; the middle rays about 1.4 in the lower; ventral surface in a specimen about 115 mm. long mostly naked, in the larger ones granulose except in a small area in front of the ventral.

Everywhere covered with round spots, a double row of about twelve on the anterior dorsal membranes, about five series on the last, fewer rows in the smaller; about twelve series of spots on the caudal; in all but one the outer caudal rays spotted.

6. *Pseudancistrus pediculatus* spec. nov.

The following specimens were collected by Manuel Gonzales on the eastern slope of the Andes between Bogotá and the Rio Meta.

SPECIMENS EXAMINED.

Catalog Number.	Number of Specimens.	Length in Mm.	Locality.
13664 I., 7348 C., paratype and type	2	60 and 118	Rio Negro, Villavicencio.
13927 I., 7586 C., paratypes ...	6	largest 95	Villavicencio.
13928 and 13663 I., paratypes..	10	largest 120	Quebrada Cramalote, Villavicencio.
13929 I., paratypes	3	largest 103	Barrigona, Rio Meta.
13932 I., 7587 C., paratypes ...	7	largest 95	Tengavita.

Head 2.7-3; depth 6.5-7; D. I, 7 in five, I, 8 in forty-six, I, 9 in two; A. I, 4; scutes usually 25, rarely 24 or 26; eye about 6 in snout, 10 in head, a little over 3 in the interorbital; ramus of lower jaw about equal to the interorbital; interopercle with two principal spines, the longer .6 of the head, extending much beyond the head; sometimes 4 or 5 graduated spines follow each other, besides these there is with age, an increasing number of smaller spines about the edge or below the hispid portion of the interopercle; snout with many bristles in the male, short spines from the eyes forward, around the nares and forward along the middle to the snout; dorsal spine equal to the snout or shorter, the last ray reaching the adipose spine or the second scute in front of it; caudal very obliquely emarginate, the lower ray 3.33 in the length; pectoral reaching tip or middle of ventrals.

Back and sides with faint spots; dorsal and caudal with numerous spots on the rays, more rarely uniform; ventrals and pectorals more faintly spotted.

7. *Ancistrus triradiatus* spec. nov.

SPECIMENS EXAMINED.

Catalog Number.	Number of Specimens.	Length in Mm.	Locality.
13935 ^a I., type.....	1 ♂	113	Quebrada Cramalote, Villavicencio.
13935 ^{b-e} I., paratypes.....	4	61-85	Quebrada Cramalote.
7591 C.....	2	78 ♂ and 81 ♀	Quebrada Cramalote.
13937 ^a I.....	1 ♂	77	Barrigona.
13937 ^{b-c} I.....	2 ♀	43 and 70	Barrigona.
7578 C.....	1	52	Villavicencio.

All the specimens were collected by Manuel Gonzales at the base of the Andes east of Bogotá.

Head 2.6-2.75; depth 6.5; D. I, 7; A. I, 3; scutes 24 or 25, 4 + 1 or 2 in front of the adipose, 9-11 + 3 between anal and caudal; eye 7-9 in head, 3-5 in interorbital, 5 in snout; width of head about 1.25 in its length; mandibular ramus 1.8-2.33 in the interorbital; interopercle with 15-20 or more spines; tentacles profuse, fully developed in a specimen 78 mm. long, consisting in the male of a row along the margin of the snout and up the sides of the head in front of the preopercle and the usual Y-shaped series on the snout; the snout very narrowly naked in the female; dorsal reaching plate in front of adipose spine, its base equal to its distance from some part of the adipose spine, pectoral spine in the male reaching to the second third of the ventrals; depth of caudal peduncle about 2.5 in its length. Caudal rounded, more obliquely so in young than in adult.

Color of the type: body including head and belly, with faint, roundish, light spots; dorsal with about five series of comma-shaped black spots in broken series lengthwise of the fin; caudal with similar but shorter spots which merge into two continuous bars at the base; pectorals and ventrals with similar but larger spots, those of successive rays alternating, outer angles of caudal light. In other specimens sometimes the tip of the first two dorsal rays, and in the young the margin of the caudal light, the markings on the fins confined to the rays. Ventral surface in the small specimens plain.

8. *Chætostomus leucomelas* spec. nov.

13652 I.; 7340 C., three, 116–143 mm., the largest the type. Rio Patia, halfway between the Rios Magui and Telembi. April 5 and 6, 1913. Henn.

Head 3.33–3.5; depth 6–6.5; D. I, 8 in two, I, 9 in one; A. I, 5; scutes 24–25; eye 2.5 in the interorbital, which is 3 in the head; depth of the head 2 in its length, its width about .8 of its length; interopercle with 3–5 strong, recurved, graduate spines; dorsal spine about .8 as long as head, base of dorsal equal to its distance from the middle of the adipose spine; caudal deeply emarginate, the lower lobe longest; depth of caudal peduncle 3 in its length.

Back and sides light olive, faintly mottled. All fins but the anal with light bands across the rays, the membranes hyaline, margin of caudal light. The contrast between light and dark bars strongest on dorsal and caudal. No spot on the second membrane of the dorsal in one of the specimens; a spot on the base of the second membrane of the dorsal in two of the specimens.

MUGILIDÆ.

9. *Joturus daguæ* spec. nov.

7458 C., type, 195 mm.; 7459 C.; 13846 I., paratypes, five, 167–225 mm. Rio Dagua at Caldas, Colombia. Eigenmann.

Head 4.1; depth 3.5; D. IV–I, 8; A. III, 9; scales 44–46, 13 or 14 between dorsal and anal; eye 5 in the head; interorbital 2.5; snout 3.25–4; snout conical, the maxillary reaching to the anterior margin of the eye; teeth of the upper jaw mostly bicuspid, more rarely tricuspid or unicuspid, a series of larger pointed teeth from an anterior row in some specimens; teeth in the lower jaw mostly unicuspid, a few bicuspid; snout conical, length of the mouth about 1.5 in its width; scales decreasing in size forward on the head but without supplemental scales; no accessory scales on the body; pre-orbital serrate on its posterior edge and on the posterior part of the lower edge; upper lip very broad in front, forming the tip of the snout; spinous dorsal naked, a few scales on the base of the membranes of the soft dorsal, caudal and anterior part of the anal; gill-

membranes free from each other to below the posterior margin of the eye; pectoral five sevenths to three fourths as long as the head, not reaching to the dorsal; first dorsal spine a little over half the length of the head, reaching to the tip of the second spine when depressed, the third spine not reaching the tip of the second and the fourth not to the tip of the third; a dark spot on base of caudal, and another on base of the pectoral; an ill-defined lateral band; dorsal spines and a streak on the membranes dark; dorsal dusky.

This species greatly resembles *Agonostomus monticola* which has a narrower and longer snout.

STOLEPHORIDÆ.

10. *Stolephorus branchiomelas* spec. nov.

7491 C., type, 68 mm.; 7492 C.; 13875 L., paratypes, three, largest 54 mm. Mouth of Rio Dagua. Eigenmann.
13880 L., ten, largest 83 mm. Tumaco? Henn & Wilson?

Head 3.33; depth 4; D. 14; A. 29 or 30; eye 3.5 in the head, .5 in snout; teeth very minute; maxillary not quite reaching gill-openings; gill-rakers about two thirds as long as the eye, 55 on the upper, 70 on the lower part of the arch; origin of dorsal equidistant from anterior margin of eye and caudal; caudal lobes equal; a silvery band, well defined between dorsal and anal, diffuse in front and behind; inner face of mandible dark, darkest near symphysis; inner lining of shoulder girdle black; gill-filaments with black chromatophores; tips of caudal dusky.

SCLENIDÆ.

11. *Stellifer melanocheir* spec. nov.

7520 C., type, 120 mm. Tumaco. Henn & Wilson.

Head 3.44; depth 3.1; D. XI, 23; A. II, 8; scales from middle of back in front of dorsal to lateral line 7, from lateral line to vent 10; 50 pores to origin of caudal rays; eye about 4 in the head, interorbital 2.5, snout 4.5; maxillary-premaxillary border 1.8.

Mouth oblique, lower jaw included, the premaxillary on a level with the lower edge of the pupil; interorbital slightly convex, chin

with a small knob, the pores evident; teeth in two irregular series, the outer series of the upper jaw and the inner series of the lower jaw enlarged. Gill-rakers 15 or 16 in upper, 25 or 26 in lower arch (21 + 27 in *S. oscitans*), preopercular spines strong, the upper directed backward, the lower downward and backward; first and second dorsal spines strong, pungent; second dorsal spine nearly half the length of the head; tenth dorsal spine shortest, the third to the seventh spines weak, flexible, the rest becoming strong pungent, the third dorsal spine higher than any of the rays; second anal spine 1.17 in the length of the head, its tip reaching tip of fourth anal ray; caudal narrowly rounded, its middle rays equal to the length of the head; pectorals reaching to above the first anal spine, the ventrals to the vent; caudal, soft dorsal and anal scaled to near the tip; a row of scales along the back of the dorsal spines to near the tip. Caudal, soft dorsal and all but part of last three anal rays densely punctate; upper surface of first two ventral rays less densely punctate; spinous dorsal and all but lowest rays of the pectorals nearly black, much darker than the other fins. Scales of sides and back with punctulations forming faint streaks, oblique between the lateral line and the spinous dorsal, horizontal elsewhere.

HEMULIDÆ.

12. *Pomadasys sinuosus* spec. nov.

Type, 13892 I., 161 mm. Patia, between Magui and Telembi. Henn.

Head 3; depth 3.3; D. XIII, 12; A. III, 8; 51 pores in the lateral line to the base of the caudal, 12 pores on the caudal; eye 4.4 in the head, snout 3.1, bony interorbital 7, interocular 5, preorbital 7.3.

Profile sinuous, slightly depressed in front of the dorsal and over the eye; snout pointed, the maxillary reaching just to the anterior margin of the eye; teeth in broad bands, the outer series of both jaws a little enlarged; spine at angle of preopercle broad, flat; gill-rakers in both arches 17, the lower four or five rudimentary, the upper three rapidly graduate; pectoral short, not near reaching vent, 1.7 in the head; fourth dorsal spine highest, 2 in the head, the

highest ray .84 of the highest spine, length of the base of soft dorsal 2.15 in the base of the spinous dorsal; second anal spine 1.4 in the head; soft dorsal naked, first two membranes of the soft anal naked, the third to the sixth with scales on the basal third. Silvery, dorsals dusky.

GOBIIDÆ.

13. *Hemieleotris levis* spec. nov.

13865 I., type, 40 mm., paratypes 13866, I.; 7484 C., twenty-three, largest 48 mm. Pools in Buenaventura. Henn.

13867 I., one, 42 mm. Rio Calima. Henn.

Head 3.5; depth 4.5; D. VII-I, 10; A. 10 or 11; scales 34 or 35 + 11, eye 1 in the length of the snout, 4 in the length of the head, interorbital a little greater than the eye.

Heavy, little compressed except on the caudal peduncle; head broad, mouth oblique, the upper lip on a level with the middle of the eye, maxillary reaching just beyond the origin of the eye; teeth in narrow bands, those of the outer series of both jaws considerably enlarged; gill-rakers 5 + 15, the inner ones of the first arch considerably heavier, blunt, about one third as long as those along the outer edge of the arch; head scaled to in front of the eyes; the scales of the head, breast, belly, and those in front of the dorsal cycloid, those of the sides with a series of strong marginal spines; spinous dorsal rounded, the middle spines longest, some of the spines reaching the soft dorsal in some specimens, usually shorter; posterior rays of the soft dorsal sometimes reaching caudal, usually shorter, the margin of the fin rounded; caudal rounded, about 3.5 in the head; anal similar to the soft dorsal; ventrals not reaching the vent; sides clouded, with indistinct cross-bands forward, becoming more distinct on the caudal peduncle; a narrow, faint, dark lateral line, most conspicuous in the male; sometimes a row of dots along a row of scales on the lower part of the sides; a dark spot on the shoulder just above the base of the pectoral; dorsal nearly uniform dusky, without markings.

14. *Sicydium hildebrandi* spec. nov.

7466 C., type, 137 mm.; 13852, I., paratype, 114 mm. Cisnero, Rio Dagua. Eigenmann.

Head 5.25; depth 5.5; D. VI, 11; A. 11; about 70 scales between pectoral and caudal, about 20 between dorsal and anal; eye 6 in the length of the head, interocular 2.5.

Head very blunt, body cylindrical, caudal peduncle compressed; scales in the middle line extending to a point a little in advance of the upper angle of the gill-opening; belly scaled; pectorals large, a little longer than head; all but the first dorsal spines produced, the second, third and fourth of nearly equal extent, reaching the fourth to the seventh dorsal ray; dorsal rays increasing in height to the penultimate which reaches the caudal and is one third longer than the head; anal similar to the dorsal but lower, its origin equidistant from eye and caudal; horizontal teeth of the lower jaw entirely concealed, teeth of the upper jaw truncate.

Scales of sides gray at margin and with a submarginal dark crescent; dorsals dark with numerous light spots, circular near base and middle, becoming elongate or vermiform toward the tip; caudal and pectoral dusky; anal dusky with a darker border.

Named for Mr. S. F. Hildebrand, in recognition of his work with the fresh-water fishes of Panama, and for his discovery of several new genera of Gobiidæ in Panama.

15. *Gobius (Ctenogobius) daguæ* spec. nov.

7481 C., type, 90 mm. to base of caudal, about 133 to end of caudal, paratypes, 7482 C.; 13863 I., three, 65–103 mm. Mouth of Rio Dagua. Eigenmann.

Allied to *Gobius boleosoma* and *encæmus*.

Head 4–4.2; depth 5.25–6; D. VI–I, 12; A. I, 12; scales 31–34; eye 4 in the head, interocular 6, preorbital very little wider than the eye; head as well as body compressed; heaviest at the ventrals, tapering regularly to the caudal, snout very blunt, narrow; width of the head but little, if any more than half its length; depth of the head 1.5 in its length; mouth low, terminal, horizontal; lips very

thin; upper jaw with an outer series of fixed teeth and a few teeth within these near the symphysis; lower jaw with a similar series of slightly smaller teeth and several irregular series behind this near the symphysis; scales large, ctenoid on the area behind the tips of the pectorals, cycloid, smaller and less regularly arranged above the pectoral; nape, region in front of the dorsal, and region above the gill-openings naked. Pectorals and ventrals nearly coextensive, a little shorter than the head; dorsal spines curved, prolonged in filaments, reaching to the base of the fourth ray; the first, second or third longest; soft dorsal reaching to or beyond the origin of the caudal; caudal very long, pointed, 2-2.5 in the length; anal similar and nearly coextensive with the dorsal.

A conspicuous black spot on the upper part of the pectoral; sides with five to eight dull spots, the alternate ones smaller, the last at the base of the caudal; spinous dorsal and lower part of soft dorsal with horizontal dark streaks; middle or upper part of caudal with faint cross bars; ventrals dusky; pectoral and anal light.

16. *Awaous decemlineatus* spec. nov.

SPECIMENS EXAMINED.

Catalog Number.	Number of Specimens.	Length in Mm.	Locality	Collector.
7478 C., type.....	1 ♂	80	Quibdo.	Eigenmann.
13862 I., 7480a-e, C.	21	largest 50	Puerto del Rio Cienega.	Gonzales.
13861 I., 7470a-d, C.	8	largest 51	Calamar Cienega.	Eigenmann.

Head 3.33; depth 5.25; D. VI-I, 9 or 10; A. I, 10; scales 57-14; eye a little over 5 in the head; equal to the interocular; maxillary reaching to below middle of the eye; snout nearly 3 in the head; mouth wide, its width equals the postorbital part of the head; teeth of the lower jaw of the type consisting of a series of small, more or less movable ones in an outer row and four strong, recurved, fixed teeth in an inner series, near the symphysis, not parallel with the outer series, and one or two similar teeth on the side of the jaw remote from the rest of the inner series and opposite the end of the outer series; upper jaw with a series of about seven strong, widely spaced, recurved teeth (16 in the young); fifth dorsal spine reach-

ing the fourth ray; the last rays reaching the caudal; caudal narrowly rounded, equal to the length of the head; tip of anal just reaching the caudal.

Ten narrow cross lines on the body, the posterior ones Y-shaped, the upper branches of the Y in contact; a small dark spot at the base of the caudal; two dark lines from the eye forward to the edge of the preorbital; an oblique black band from the first to the second dorsal spine in the second or third fourth of their height; dorsal faintly barred; upper three fifths of the caudal conspicuously barred by lines that become more wavy and less distinct toward the tip of the fin; lower portion of caudal plain.

Easily distinguished from the other species of the genus by its narrow cross lines. In the smaller specimens the teeth of the lower jaw are less differentiated. The outer row of sixteen to twenty teeth are slightly larger at the outer edge of the row, the inner row consists of ten teeth in a series nearly parallel to the proximal half of the outer row.

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17. *Brycon ecuadoriensis* Eigenmann & Henn, spec. nov.

13470 I., type, 245 mm. from tip of snout to end of lower caudal lobe, 204 to end of scales on middle of caudal. Rio Barranca Alta from Naranjito, Ecuador. Henn.

Head 3.6; depth 3.3; D. 11; A. III, 29.5; scales 9-56-4 to ventrals; eye about 4.1; base of anal equals length of head.

Preventral area rounded, postventral area compressed, not keeled; predorsal area very bluntly keeled; occipital process about 8 in the length from its base to the caudal; interorbital moderately convex; snout rounded; frontal fontanel about one third as long as the parietal; cheeks with an exceedingly narrow naked margin; premaxillary with 6 teeth in the outer series of one side, 7 in the other side; five teeth in the inner series; three teeth in a row from the second tooth of the outer to the third of the inner series, a tooth between the first of the outer and the second of the inner series; 14 teeth in the maxillary to near its tip, the anterior ones which form a continuous series with the inner series of the premaxillary largest;

mandibular teeth slightly graduate in height from the third to the first, the second tooth being the widest; the three first teeth of the two mandibles forming a compact series in an open crescent; fourth tooth slightly recurved, much smaller than the third, the remaining two teeth quite small (on the left side there is an abnormal gap between the third and fourth teeth); the inner series of teeth begins just within the last tooth of the outer series and consists of four teeth; symphysial tooth small; maximum width between front and rear series about 5 mm.

Gill-rakers $11 + 14$, the longest 5 mm.; longest gill filament 11 mm.

Origin of dorsal 102 mm. from tip of snout, 106 from end of scales at base of middle caudal rays; exposed portion of longest upper caudal ray 47 mm., of longest lower ray 51 mm. First developed anal ray equidistant with last dorsal ray from the end of the scales of the middle caudal rays; first rudimentary ray 128 mm. from tip of snout; origin of ventrals 93 mm. from tip of snout; pectoral just reaching ventrals.

Scales on the middle of the sides with as many as ten sub-parallel radials, more toward the base of the anal. Lateral line faint; a large axillary scale.

Dark on sides and above, with steel blue to brassy lustre; fins dusky; a large, obscure humeral band; a large black spot on caudal peduncle, most intense toward its end, fading out forward, continued on the membranes of the middle rays to their tip.

18. **Brycon meeki** Eigenmann & Hildebrand, spec. nov.

Many specimens from the Rios San Juan, Dagua, and Patia of western Colombia.

Head 3.8 to 4.55; depth 3 to 3.25; D. 10 or 11; A. 33 to 35; scales 12 or 13-60 to 70-7 or 8.

Body elongate, compressed; profile slightly concave over eyes, elevated at nape; head rather small; snout blunt, 3.5 to 3.85 in head; eye 2.75 to 4; interorbital 2.3 to 3.1; mouth moderate; upper jaw strongly projecting; maxillary reaching opposite middle of eye, 2.1 to 2.4 in head; premaxillary teeth laterally in 3 series, anteriorly

in 5 more or less irregular series, the fourth series consisting of only 2 teeth, the fifth or transverse series with 4 teeth; maxillary teeth small, about 13 in number; mandibular teeth quite strong, 8 large ones and abruptly smaller ones at sides in outer series; gill-rakers moderate, 15 or 16 on lower limb of first arch; lateral line complete, curved downward; scales moderate, regularly placed, 22 or 23 rows before dorsal; 17 to 19 vertical rows crossing back between dorsal and adipose; 4 longitudinal rows between lateral line and base of pectoral; dorsal fin in advance of anal, its origin midway between tip of snout and base of caudal or slightly nearer the latter; caudal fin forked, the lower lobe the longer; anal fin long, its base longer than head; ventral fins usually reaching vent, inserted slightly nearer origin of anal than base of pectorals; pectoral fins usually not quite reaching base of ventrals, inserted under margin of opercle.

Color dark blue above, silvery below; a conspicuous black margin on shoulder girdle; no lateral band; no caudal spot. Some specimens with indistinct vertical dark lines. Fins unmarked.

Named in honor of the late Seth E. Meek.